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Listing of Claims

A listing of claims is provided below for the Examiner's convenience.

Claim 1 (original): A method of processing a received signal containing a desired burst and a co-channel interferer burst, the method comprising:

receiving the received signal from a front end receiver;

detecting a time offset between the desired burst and the co-channel interferer burst; and

selecting a detection procedure based on the time offset between the desired burst and the co-channel interferer burst.

Claim 2 (original): The method of claim 1 further comprising:

selecting a joint detection procedure when a training sequence of the desired burst and a training sequence of the co-channel interferer burst overlap each other by at least a first predetermined amount;

if the training sequence of the desired burst and the training sequence of the co-channel interferer do not overlap each other by at least the first predetermined amount, then selecting an iterative detection procedure when the training sequence of the co-channel interferer burst overlaps the desired burst by a second predetermined amount; and

selecting a conventional detection procedure when the training sequence of the co-channel interferer burst does not overlap the desired burst by at least the second predetermined amount.

Claim 3 (original): The method of claim 2, wherein the first predetermined amount is about 50%.

Claim 4 (original): The method of claim 2, wherein the second predetermined amount is about 50%.

Claim 5 (original): The method of claim 2, wherein the joint detection procedure comprises:

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finding a synchronization position by correlating the training sequences of the desired burst and the co-channel interferer burst with the received burst;

estimating a first channel and a second channel jointly, thereby generating a first channel estimate and a second channel estimate; and

providing the received signal, the first channel estimate, the second channel estimate and the synchronization position to an equalizer, wherein the equalizer jointly detects both desired and co-channel interferer symbols.

Claim 6 (original): The method of claim 5 further comprising:
rejecting the co-channel interferer symbols.

Claim 7 (original): The method of claim 2, wherein the iterative detection procedure comprises:

estimating a first channel from the received signal, thereby generating a first channel estimate and a first synchronization position;

providing the received signal, the first channel estimate and the first synchronization position to an equalizer, wherein the equalizer performs a first equalization and generates a first estimate of transmitted signals and residuals;

estimating a second channel using the residuals from the first equalization, a synchronization position of the co-channel interferer and a training sequence of the co-channel interferer, thereby generating a second channel estimate;

providing the second channel estimate to the equalizer, wherein the equalizer performs a second equalization over a first part of the desired burst disturbed by the co-channel interferer burst using joint detection based on the first and second channel estimates;

performing a conventional equalization on a second part of the desired burst not disturbed by the co-channel interferer burst; and

generating a second estimate of transmitted symbols from the equalization of the first and second parts of the desired burst.

Claim 8 (original): The method of claim 1 further comprising:

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selecting a conventional detection procedure when the co-channel interferer

has a low signal strength compared to a signal strength of the desired burst.

Claim 9 (original): The method of claim 1, wherein the time offset is a

difference between a coarse synchronization position for the desired burst and a

synchronization position for the co-channel interferer.

Claim 10 (original): The method of claim 9, wherein the synchronization

position for the co-channel interferer is based on a time of arrival.

Claim 11 (original): The method of claim 9, wherein the synchronization

position for the co-channel interferer is based on a long time correlation.

Claim 12 (original): The method of claim 1 further comprising:

detecting a modulation for the desired burst; and

detecting a modulation for the co-channel interferer.

Claim 13 (original): The method of claim 1 further comprising:

detecting a time offset between the desired burst and at least one additional

co-channel interferer burst contained in the received signal; and

selecting a detection procedure for the at least one additional co-channel

interferer burst based on the time offset between the desired burst and the at least

one additional co-channel interferer burst.

Claim 14 (original): A receiver comprising:

a front end receiver that outputs a received signal that contains a desired

burst and a co-channel interferer burst;

logic that detects a time offset between the desired burst and the co-channel

interferer burst; and

logic that selects a detection procedure based on the time offset between the

desired burst and the co-channel interferer burst.

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Claim 15 (original): The receiver of claim 14 further comprising:

logic that selects a joint detection procedure when a training sequence of the desired burst and a training sequence of the co-channel interferer burst overlap each other by at least a first predetermined amount;

if the training sequence of the desired burst and the training sequence of the co-channel interferer do not overlap each other by at least the first predetermined amount, then logic that selects an iterative detection procedure when the training sequence of the co-channel interferer burst overlaps the desired burst by a second predetermined amount; and

logic that selects a conventional detection procedure when the training sequence of the co-channel interferer burst does not overlap the desired burst by at least the second predetermined amount.

Claim 16 (original): The receiver of claim 15, wherein the first predetermined amount is about 50%.

Claim 17 (original): The receiver of claim 15, wherein the second predetermined amount is about 50%.

Claim 18 (original): The receiver of claim 15, wherein the joint detection section comprises:

logic that finds a synchronization position by correlating the training sequences of the desired burst and the co-channel interferer burst with the received burst;

logic that estimates a first channel and a second channel jointly, thereby generating a first channel estimate and a second channel estimate; and

logic that provides the received signal, the first channel estimate, the second channel estimate and the synchronization position to an equalizer, wherein the equalizer jointly detects both desired and co-channel interferer symbols.

Claim 19 (original): The receiver of claim 18 further comprising:

logic that rejects the co-channel interferer symbols.

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Claim 20 (original): The receiver of claim 15, wherein the iterative detection section comprises:

logic that estimates a first channel from the received signal, thereby generating a first channel estimate and a synchronization position;

logic that provides the received burst, the first channel estimate and the synchronization position to an equalizer, wherein the equalizer performs a first equalization and generates a first estimate of desired symbols and residuals;

logic that estimates a second channel using the residuals from the first equalization, a synchronization position of the co-channel interferer and the training sequence of the co-channel interferer, thereby generating a second channel estimate;

logic that provides the second channel estimate to the equalizer, wherein the equalizer performs a second equalization over a first part of the desired burst disturbed by the co-channel interferer burst using joint detection based on the first and second channel estimates;

logic that performs a conventional equalization on a second part of the desired burst not disturbed by the co-channel interferer burst; and

logic that generates a second estimate of desired symbols from the equalization of the first and second parts of the desired burst.

Claim 21 (original): The receiver of claim 14 further comprising:

logic that selects a conventional detection section when the co-channel interferer has a low signal strength compared to a signal strength of the desired burst.

Claim 22 (original): The receiver of claim 14, wherein the time offset is a difference between a coarse synchronization position for the desired burst and a synchronization position for the co-channel interferer.

Claim 23 (original): The receiver of claim 22, wherein the synchronization position for the co-channel interferer is based on a time of arrival.

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Claim 24 (original): The receiver of claim 22, wherein the synchronization position for the co-channel interferer is based on a long time correlation.

Claim 25 (original): The receiver of claim 14 further comprising:
logic that detects a modulation for the desired burst; and
logic that detects a modulation for the co-channel interferer.

Claim 26 (original): The receiver of claim 14, wherein the receiver is a base station receiver.

Claim 27 (original): The receiver of claim 14, wherein the receiver is a mobile terminal receiver.

Claim 28 (original): The receiver of claim 14 further comprising:
logic that detects a time offset between the desired burst and at least one additional co-channel interferer burst contained in the received signal; and
logic that selects a detection procedure for the at least one additional co-channel interferer burst based on the time offset between the desired burst and the at least one additional co-channel interferer burst.